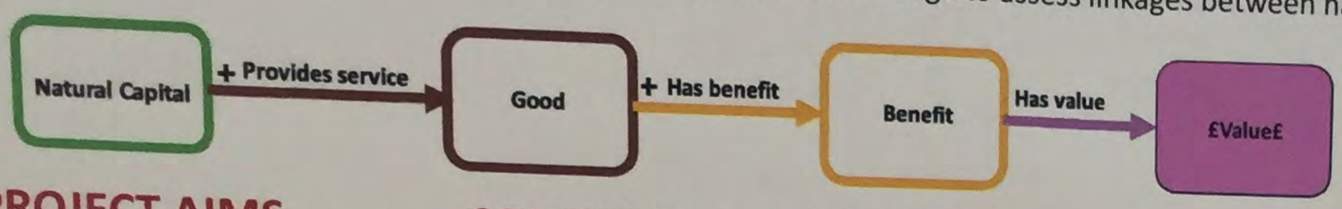
Centre for Ecology & Hydrology
NATURAL ENVIRONMENT RESEARCH COUNCIL

Natural Capital Metrics

Bill Bealey and the entire NCMet project team (see website for details)
• *www.ceh.ac.uk/our-science/projects/natural-capital-metrics* • *Report: https://goo.gl/dD5MNz*

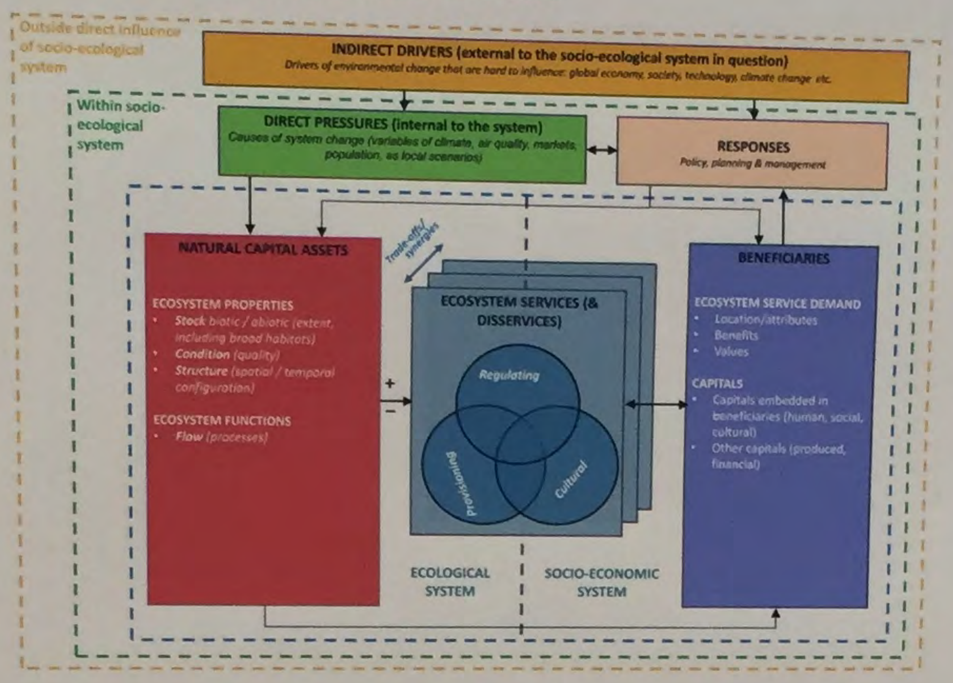
Humans are dependent on goods and services provided by the natural environment. These are delivered by assets such as soils, trees, water, air and insect pollinators. The term natural capital is used to recognise the importance of nature's assets and the benefits that flow from them in the form of ecosystem services. The **Natural Capital Metrics (NCMet)** project is integrating data, models and scientific knowledge to assess linkages between natural capital assets, ecosystem services and human well-being.



PROJECT AIMS

- **Develop a conceptual framework**
- **Produce a set of evidence chains to visualise interactions between natural capital assets and ecosystem benefits.**
- **Design a weighting system for assessing the strength of evidence between the chains**
- **Develop a Natural Capital Portal:**
  - **an evidence chain tool for investigating links**
  - **a Metadata Catalogue of natural capital datasets and models**

CONCEPTUAL FRAMEWORK



The development of the NCMet conceptual framework was an iterative process based on reviews of other conceptual frameworks e.g. Cascade model (Potschin and Haines-Young, 2011); DPSIR framework (Rounsevell et al. 2010); Final Ecosystem Goods and Services (FEGS) developed by the US-EPA (Landers and Nahlik, 2013).

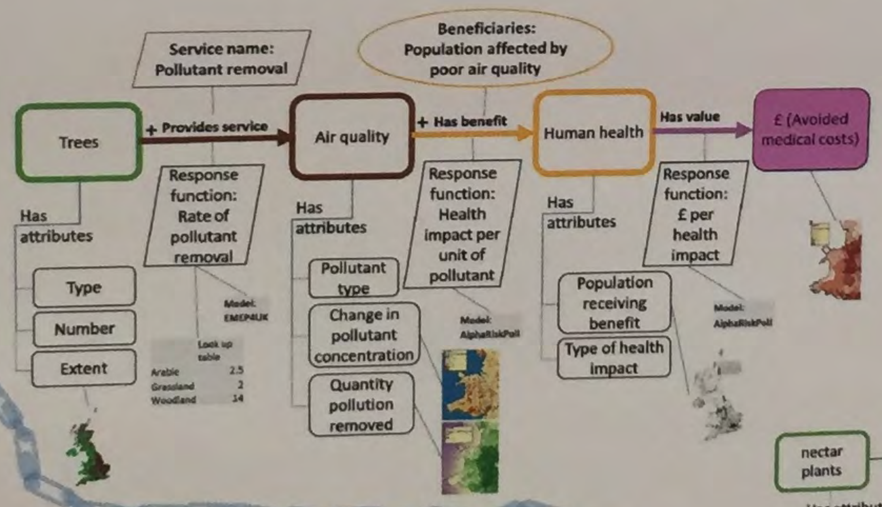
Key questions that the framework addresses:

- *Which natural capital assets underpin an ecosystem service or human benefit?*
- *What human benefits does a natural capital asset or combination of assets produce?*
- *How do different natural capital assets combine to produce benefits?*
- *What aspects of natural capital assets are important for delivering ecosystem service benefits?*
- *What management responses can improve the delivery of human benefits from ecosystem services?*
- *How do natural capital assets and ecosystem services respond to certain drivers of change?*

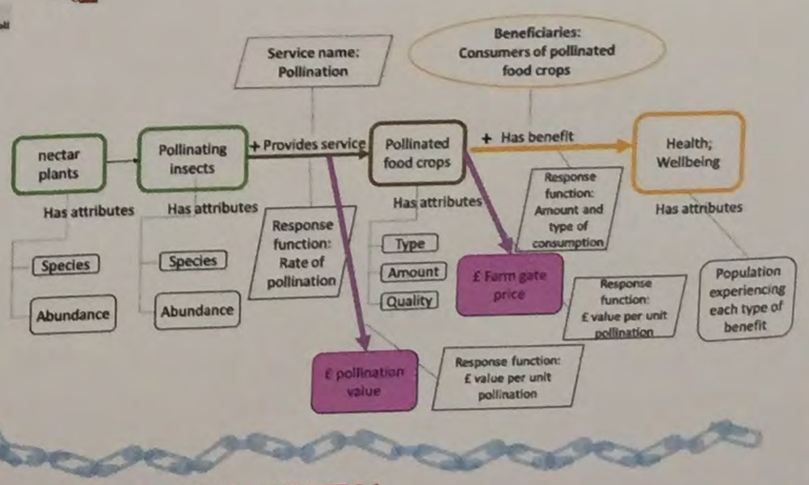
EVIDENCE CHAINS

Evidence chains provide a description of the linkages and interactions between natural capital assets and ecosystem services and human benefits. The project has looked at a number of evidence chains to date including: *Pollination • Lake water quality regulation • Flood mitigation through tree planting • Flood and drought mitigation through riverine vegetation • Conflicts between seabird conservation and the development of renewable energy sources • Benefits of trees on air quality and human health.*

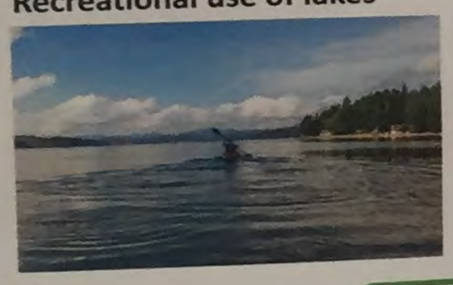
Pollutant removal by trees

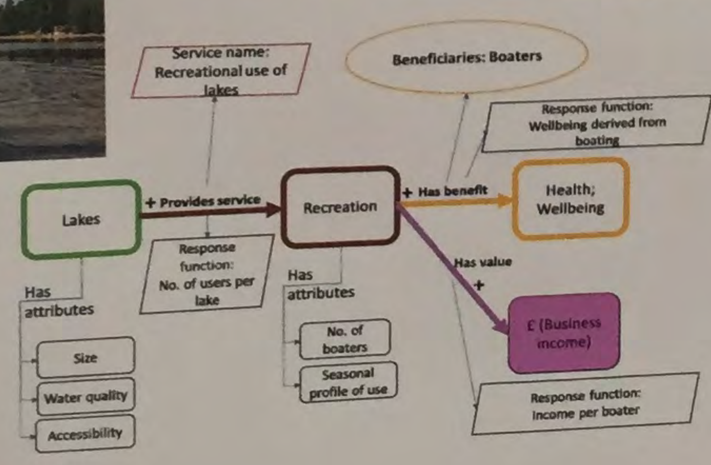


Regulating Service - Crop pollination



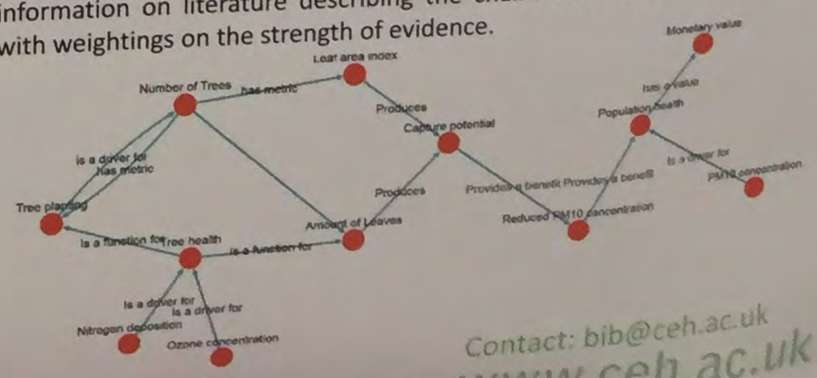
Recreational use of lakes





NATURAL CAPITAL PORTAL

We are developing an online portal featuring a tool to explore the chains and evidence behind the them. The tool will provide a clickable interface for the exploration of different assets, and pathways to benefits. Key information on literature describing the chains will be provided together with weightings on the strength of evidence.



SCORING EVIDENCE

A key aspect of understanding and quantifying links between natural capital assets and benefits to people is defining the underpinning scientific evidence. However, evidence can be open to bias or can be formed on few studies. NCMet will undertake a review of each evidence chain by using a weighting exercise of literature based on three indicators:

- **Quality (Strength) of evidence**
- **Direction of trend (as supported by evidence)**
- **Magnitude of effect (significance of impact identified by evidence)**

Weighting provides a valuable tool for comparing different sources of evidence that may be inconsistent or contradictory.

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